

IN THE CLAIMS:

The following is a complete listing of the claims and reflects all changes currently being made to the claims. This listing supersedes all earlier versions and all earlier listings of the claims:

1-15. (Cancelled).

16-18. (Cancelled).

19-20. (Cancelled).

21. (Previously Presented) An electron-emitting apparatus comprising:

A) a first electrode and a second electrode disposed on a surface of a substrate;

B) first voltage source for applying to said second electrode a potential higher than a potential applied to said first electrode;

C) a plurality of carbon fibers disposed on said first electrode; and

D) a third electrode disposed so as to face said substrate, electrons emitted from said carbon fibers reaching said third electrode; and

E) second voltage source for applying to said third electrode a potential higher than each of the potentials applied to said first and second electrodes,

wherein a surface region of said carbon fibers is placed between a plane, which contains a surface of said second electrode and is substantially parallel to the surface of

said substrate, and a plane, which contains a surface of said third electrode and is substantially parallel to the surface of said substrate.

22. (Original) An electron-emitting apparatus according to claim 21, wherein when the distance between said second electrode and said first electrode is d ; the potential difference applied between said second electrode and said first electrode by said first voltage source is V_1 ; the distance between said third electrode and said substrate is H ; and the potential difference between the potential applied to said third electrode by said second voltage source and the potential applied to said first electrode is V_2 , then an electric field $E_1 = V_1/d$ is within the range from 1 to 50 times an electric field $E_2 = V_2/H$.

23. (Previously Presented) An apparatus according to claim 21, wherein each of said carbon fibers is a carbon nanotube.

24. (Previously Presented) An apparatus according to claim 21, wherein each of said carbon fibers comprises a plurality of graphenes stacked so as to be nonparallel to an axis direction of said carbon fiber.

25. (Previously Presented) An apparatus according to claim 21, wherein a material more effective in accelerating deposition of carbon than a material of said first electrode is provided between said carbon fibers and said first electrode.

26. (Original) An apparatus according to claim 25, wherein said material effective in accelerating deposition of carbon comprises Pd, Ni, Fe, Co or an alloy formed of at least two of said metals.

27. (Original) An apparatus according to claim 25, wherein said material effective in accelerating deposition of carbon is provided in the form of a plurality of particles on said first electrode.

28. (Original) An apparatus according to claim 27, wherein said plurality of particles are provided on said first electrode at a density of 10^{10} particles/cm² or higher.

29. (Previously Presented) An apparatus according to claim 21, wherein a thickness of said first electrode is larger than a thickness of said second electrode.

30. (Original) An apparatus according to any one of claims 21 to 29, wherein a plurality of said first electrodes and a plurality of said second electrodes are disposed on the surface of said substrate.

31. (Original) An apparatus according to claim 30, wherein said plurality of first electrodes and said plurality of second electrodes are electrically connected to wiring in matrix form.

32. (Previously Presented) An apparatus according to claim 30, wherein a phosphor capable of emitting light when irradiated with electrons emitted from said carbon fibers is provided on said third electrode.

33. (Original) An image display apparatus using an electron-emitting apparatus according to claim 32.

34. (Previously Presented) An image display apparatus comprising:
a plurality of electron-emitting devices and a light-emitting member comprising a phosphor and an anode electrode, arranged above said electron-emitting devices,
wherein each of said plurality of electron-emitting devices comprises:
A) a first electrode and a second electrode disposed on a surface of a substrate; and
B) a plurality of carbon fibers arranged on said first electrode and connected electrically to said first electrode,
wherein said second electrode is an electrode for controlling electron emission from said carbon fibers,
wherein each of said carbon fibers comprises graphene, and
wherein the distance between an extreme end of said carbon fibers and the surface of said substrate is larger than the distance between a surface of said second electrode and the surface of said substrate.

35. (Canceled).

36. (Previously Presented) An image display apparatus according to claim 34, wherein said graphene comprises cylindrical graphene.

37-72. (Canceled).

73. (New) An electron-emitting device comprising:

(a) a cathode electrode and a gate electrode, which are arranged at an interval on a surface of a substrate; and

(b) a carbon fiber, arranged on said cathode electrode and connected electrically to said cathode electrode,

wherein said carbon fiber has a plurality of graphenes which are aligned so as not to be parallel to an axis-direction of said fiber, and

wherein said graphenes are stacked in said axis-direction.

74. (New) The electron-emitting device according to claim 73, wherein

the electron-emitting device is arranged in opposition to an anode electrode at a driving thereof;

the carbon fiber has a portion which is positioned at a shorter distance from the anode electrode rather than a distance between the anode electrode and the gate electrode.

75. (New) The electron-emitting device according to claim 73, wherein the cathode electrode and the gate electrode are arranged on the same surface of the substrate.

76. (New) The electron-emitting device according to claim 73, wherein the cathode electrode and the gate electrode have the same thickness.

77. (New) The electron-emitting device according to claim 73, wherein a distance between the portion of the carbon fiber and the surface of the substrate is longer than a distance between a surface of the gate electrode and the surface of the substrate.

78. (New) An image display apparatus comprising:
an electron source comprising a plurality of electron-emitting devices; and
an anode provided with a light-emitting member irradiated with an electron emitted from the electron source to emit light, wherein
each electron-emitting device is an electron-emitting device according to claim 73.

79. (New) A television apparatus comprising:
an image display apparatus according to claim 78.

80. (New) A computer apparatus comprising:
an image display apparatus according to claim 78.

81. (New) An electron-emitting apparatus comprising:
(a) an anode electrode;
(b) a cathode electrode and a gate electrode, which are arranged at an interval on a surface of a substrate opposed to said anode electrode; and
(c) a carbon fiber, arranged on said cathode electrode and connected electrically to said cathode electrode,
wherein said carbon fiber has a plurality of graphenes which are aligned so as not to be parallel to an axis-direction of said fiber, and
wherein said graphenes are stacked in said axis-direction.

82. (New) The electron-emitting device according to claim 81, wherein
the electron-emitting device is arranged in opposition to an anode electrode at a driving thereof, and
the carbon fiber has a portion which is positioned at a shorter distance from the anode electrode rather than a distance between the anode electrode and the gate electrode.

83. (New) The electron-emitting device according to claim 81, wherein

the cathode electrode and the gate electrode are arranged on the same surface of the substrate.

84. (New) The electron-emitting device according to claim 81, wherein the cathode electrode and the gate electrode have the same thickness.

85. (New) The electron-emitting device according to claim 73, wherein a distance between the portion of the carbon fiber and the surface of the substrate is longer than a distance between a surface of the gate electrode and the surface of the substrate.